

**REMARKS**

Claim 10 has been amended to correct a typographical error in the formula for the substituent group represented  $Z^5$ .

Claims 2 and 4 are allowed, and claims 9-32 are rejected.

Review and reconsideration on the merits are requested.

Claims 9-32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0265738 A1 (Feiring et al.). Feiring et al. was cited as disclosing fluorinated polymers said to be structurally similar to the claimed norbornene derivative, and specifically at page 4 where at least one of  $R^1$ - $R^4$  is H, halogen, a hydrocarbon group containing from 1-10 carbon atoms, a substituted hydrocarbon group, etc. The reason for rejection was that it would have been obvious to prepare a resin comprising a monomer meeting the claim limitations (presumably in view of the prior art polymers).

Applicants traverse, and respectfully request the Examiner to reconsider for the following reasons.

The independent product claims are claims 9, 10, 11, 14 and 15.

The norbornene derivative of claim 9 represented by formula (8) is characterized as having a fluorine-containing alcohol structure where the norbornene unit is substituted with the group  $-C(R^3)(R^4)OH$  where  $R^3$  is H or a hydrocarbon group having 1 to 10 carbon atoms and where  $R^4$  represents a fluorine-containing alkyl group having 1 to 10 carbon atoms or a fluorine-containing alkyl group having 1 to 10 carbon atoms and ether bond.

On the other hand, paragraph [0080] of Feiring et al. discloses a fluorine-containing polymer comprising a norbornene unit including substituents  $R^1$  to  $R^4$  which independently represent a hydrogen atom, a halogen atom, a hydrocarbon group containing 1 to 10 carbon atoms, a substituted hydrocarbon group, an alkoxy group, a carboxylic acid group, a carboxylic ester group or a functional group containing the structure  $-C(R_f)(R_f')OR_b$  where  $R_b$  is hydrogen or an acid- or base-labile protecting group.

Thus, present claim 9 where the norbornene unit is substituted by  $-C(R^3)(R^4)OH$  where  $R^3$  is H or a hydrocarbon group differs from the structure disclosed in paragraphs [0080] to [0082] of Feiring et al. where  $R_f$  and  $R_f'$  in the substituent  $-C(R_f)(R_f')OR_b$  are both fluoroalkyl groups.

Furthermore, the Examiner has not advanced any reason as to why the prior art would lead one of ordinary skill to modify the fluorine-containing polymer of Feiring et al. where  $R_f$  and  $R_f'$  in the substituent  $-C(R_f)(R_f')OR_b$  in the norbornene unit are both fluoroalkyl groups to arrive at the substituent  $-C(R^3)(R^4)OH$  of the norbornene unit of claim 9 where  $R^3$  is H or a hydrocarbon group having 1 to 10 carbon atoms.

The norbornene derivatives represented by formulae (9), (10), (11) and (12) of claims 10, 11, 14 and 15, respectively, are characterized as having a fluorine-containing tertiary alcohol structure which is directly bonded to the norbornene backbone.

On the other hand, the description of Feiring et al. at paragraph [0081] describes corresponding  $R^1$  to  $R^4$  as containing the structure:  $-C(R_f)(R_f')OR_b$  ( $R_b=H$  or an acid- or base-labile protecting group)" which includes numerous functional groups such as groups having

various spacers. This is not a description of a fluorine-containing tertiary alcohol structure which is directly bonded to the norbornene backbone as required by claims 10, 11, 14 and 15. Further in this regard, the fact that all examples in Feiring et al. of the functional group containing the structure:  $-C(R_f)(R_f)OR_b$  ( $R_b=H$  or an acid- or base-labile protecting group)" have the spacers such as  $-CH_2-$  and  $-O-$  shows that Feiring et al. did not contemplate directly bonding the functional group to the norbornene backbone.

More importantly, among the definitions of  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  in Feiring et al., the word "containing" is used only for the functional group. For instance, "a carboxylic acid" can be defined as --a functional group containing a carboxylic acid--, but is not so defined in Feiring et al. Thus, even given its broadest reasonable interpretation, the words "a functional group containing the structure  $-C(R_f)(R_f)OR_b$  must be understood as calling for something more than the structure  $-C(R_f)(R_f)OR_b$ .

The norbornene derivatives of claims 10, 11, 14 and 15 having a fluorine-containing tertiary alcohol structure directly bonded to the norbornene backbone provides improved transparency and dry-etching resistivity, and exhibits excellent solubility in an alkaline solution (a developing solution for a resist) (see page 5, line 21 to page 6, line 12; page 63, lines 10-18 of the specification), which properties are mandatory for providing a high performance photoresist. That is, directly bonding the fluorine-containing tertiary alcohol structure to the norbornene backbone as required by claims 10, 11, 14 and 15 is critical to achieving the effects of the invention not taught by the prior art.

As discussed above, Applicants believe that the specific language "a functional group containing the structure:  $-C(R_f)(R_f)OR_b$  is not a description of such group being directly bonded to a norbornene backbone. Furthermore, there is no motivation and the prior art does not suggest the desirability of selecting a norbornene derivative having  $-C(R_f)(R_f)OH$  being directly bonded to the norbornene backbone. That is, one of ordinary skill could not arrive at the claimed structures in the absence of Applicants' specific teaching in their specification. Without some reason suggesting the desirability of selecting a norbornene derivative having  $-C(R_f)(R_f)OH$  directly bonded to the norbornene backbone, it is respectfully submitted that the obviousness rejection over Feiring et al. is no more than hindsight reconstruction of Applicants' invention.

For the above reasons, it is respectfully submitted that the present claims are patentable over Feiring et al., and withdrawal of the foregoing rejection is respectfully requested.

Withdrawal of all rejections and allowance of claims 2, 4 and 9-32 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Application No. 10/753,529

Q79073

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Respectfully submitted,



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